Marine Debris Found on the Davidson Seamount: 4,000 to 11,500 Feet Deep

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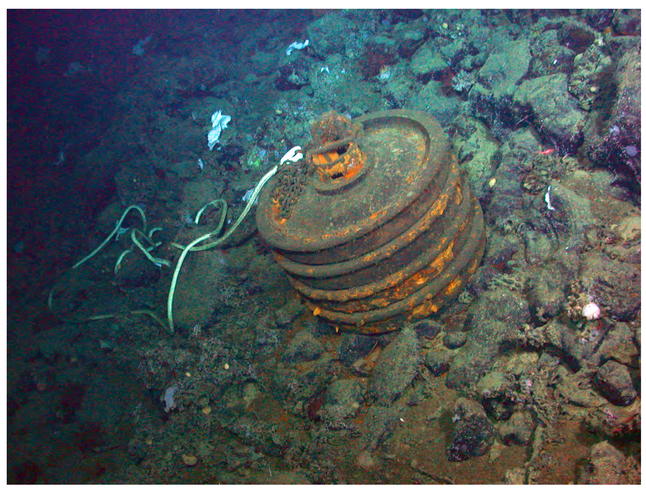
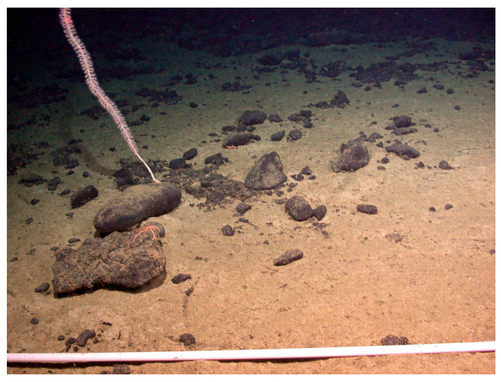
While there is increasing understanding of marine debris, few studies have assessed it in the deep, and we are aware of no marine debris documentation on seamounts.



These train wheels and rope were left behind by scientists after an acoustic study of coastal California currents was completed. This is an example of abandoned research equipment debris.

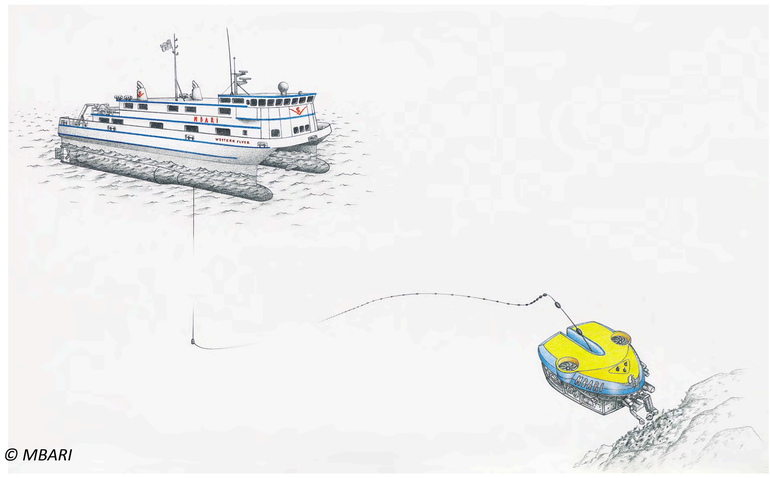


A communications cable can be seen at the lower part of this image. It was considered marine debris as that will be its eventual fate unless a management agency requires its removal.

This Coca-Cola bottle originated in South Korea, and was likely tossed off of an oil tanker or container ship.

Abstract

Davidson Seamount, part of the Monterey Bay National Marine Sanctuary, is considered a relatively pristine habitat. We documented marine debris over 176 kilometers using video transects and still images from NOAA/MBARI cruises in 2002 and 2006. Forty-four pieces of marine debris were documented with 41% being metal and 25% being plastic. These included bowls, buckets, cans, a broom, plastic bags, and train wheels. This debris mostly rains down from boat discards, as opposed to other deep-sea habitats where debris can originate from the shoreline and is pushed by currents along the continental shelf and into canyons.



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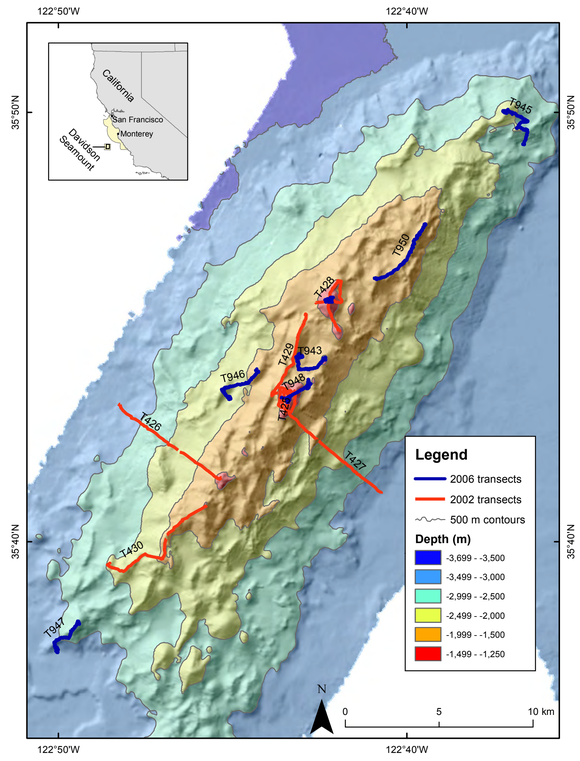
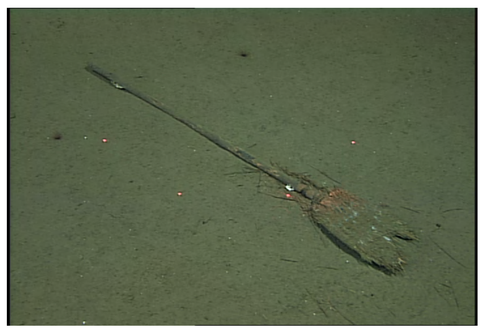
Using the R/V *Western Flyer* and ROVs *Tiburon* and *Doc Ricketts*. Video transects were use to characterize Davidson Seamount. These videos were also used to detect and enumerate marine debris.



During NOAA/MBARI cruises in 2002 and 2006, remotely operated vehicles surveyed 176 kilometers of Davidson Seamount. 44 items of debris were catalogued.

The Olympia beer can was found at 8,589 feet deep.



This broom and foil wrapping are examples of wood and metal debris, respectively.

Types of Marine Debris	Frequency of Debris Type
Metal	41%
Plastic	25%
Unidentified	11%
Paper	5%
Rope	5%
Glass	5%
Rubber	2%
Wood	2%
Fabric	2%
Abandoned research equipment	2%

Though considered one item, this bucket full of trash will disperse into many pieces of marine debris.

Plastic bags limit the ability of sponges to generate currents that deliver food to the organism.

This milk bottle was collected, and traced back to a dairy in Pt. Reyes, that historically provided milk for the U.S. Navy.

News from the deep!

Discussion

Surveying a small portion of Davidson Seamount, the debris found indicates that the area is not as pristine as originally assumed. Some of the debris may provide habitat, like the broom handle for wood eating worms or the bottles for brittle stars; however, the plastics may smother sponges and other organisms while deteriorating, smaller pieces may cause problems upon ingestion. In 2002, John Blackstone, reporter for CBS news aptly said, "This is the first expedition to study the biology of Davidson Seamount, but these animals have been feeling human presence for many years."

Acknowledgements

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